

**WEST**

Generate Collection

Print

L10: Entry 112 of 118

File: JPAB

Jun 12, 2001

PUB-NO: JP02001158691A  
DOCUMENT-IDENTIFIER: JP 2001158691 A  
TITLE: SAPPHIRE SUBSTRATE

PUBN-DATE: June 12, 2001

## INVENTOR-INFORMATION:

NAME

COUNTRY

YAGUCHI, YOICHI

SUNAKAWA, KAZUHIKO

FURUTAKI, TOSHIRO

KUROIWA, TERUO

SATO, TSUGIO

## ASSIGNEE-INFORMATION:

NAME

COUNTRY

NAMIKI PRECISION JEWEL CO LTD

APPL-NO: JP11338716

APPL-DATE: November 29, 1999

INT-CL (IPC): C30 B 29/20; H01 L 33/00

## ABSTRACT:

PROBLEM TO BE SOLVED: To provide a sapphire substrate capable of subjecting various kinds of semiconductors including a semiconductor of group III nitride such as GaN, etc., and a semiconductor of gallium nitride-based compound such as GaAlN, etc., to excellent epitaxial growth and improving a yield.

SOLUTION: This sapphire substrate is used in the epitaxial growth of the semiconductors. The sapphire substrate has a crystal growth face to be subjected to crystal growth tilted from the axis c of the substrate by a fixed angle in a given direction.

COPYRIGHT: (C) 2001, JPO

**WEST**

Generate Collection

Print

L10: Entry 113 of 118

File: JPAB

Sep 14, 2000

PUB-NO: JP02000252589A

DOCUMENT-IDENTIFIER: JP 2000252589 A

TITLE: GALLIUM NITRIDE SEMICONDUCTOR LASER ELEMENT AND ITS  
MANUFACTURE

PUBN-DATE: September 14, 2000

## INVENTOR-INFORMATION:

NAME

COUNTRY

OKUMURA, TOSHIYUKI

## ASSIGNEE-INFORMATION:

NAME

COUNTRY

SHARP CORP

APPL-NO: JP11052074

APPL-DATE: March 1, 1999

INT-CL (IPC): H01 S 5/323; H01 L 33/00

## ABSTRACT:

PROBLEM TO BE SOLVED: To increase the yield rate of gallium nitride semiconductor laser elements of a low oscillation threshold current by making specific an angle formed by the end surface of a resonator and the direction of the current constricting stripes of an active layer, and the full width at half maximum of the intensity distribution of a laser beam in a direction parallel to the active layer respectively.

SOLUTION: A crack preventing layer 3 is a ternary mixed crystal of In<sub>0.1</sub>Ga<sub>0.9</sub>N or InGaN other than this. An n-type clad layer 4 and a p-type first clad layer 11 are AlGaIn ternary mixed crystals having Al composition other than Al<sub>0.1</sub>Ga<sub>0.9</sub>N. When the Al composition is larger, the energy gap difference and the refractive index difference between an active layer and a clad layer become larger, and carriers and light are effectively confined to the active layer, and an oscillation threshold current is reduced and the temperature property is improved. If stripes of ridge construction are aligned and the angle of a tilt formed by the direction of ridge stripes of each resonator and the end surface of the resonator is made to be in the extent of 90

COPYRIGHT: (C)2000, JPO

**WEST**

Generate Collection

Print

L10: Entry 114 of 118

File: JPAB

Oct 9, 1998

PUB-NO: JP410268225A

DOCUMENT-IDENTIFIER: JP 10268225 A

TITLE: ADJUSTING METHOD OF OPTICAL DEFLECTION DEVICE AND ADJUSTING  
DEVICE THEREFOR

PUBN-DATE: October 9, 1998

## INVENTOR-INFORMATION:

NAME

COUNTRY

SHIBUYA, SATOSHI

GAN, MASAO

KAMIMURA, SHOJI

## ASSIGNEE-INFORMATION:

NAME

COUNTRY

KONICA CORP

APPL-NO: JP09074842

APPL-DATE: March 27, 1997

INT-CL (IPC): G02 B 26/10; G02 B 7/198

## ABSTRACT:

PROBLEM TO BE SOLVED: To provide an adjusting method and an adjusting device so as to improve the accuracy of a tilt angle of an optical deflection device using a polygon mirror.

SOLUTION: This device is composed of a light source 301 irradiating the mirror surface 101A of a polygon mirror 101 and a light receiving element 302 receiving a reflected light beam from the mirror surface 101A, has a tilt angle adjusting means 400 composed of a tilt angle measuring instrument 300 for measuring the tilt angle of the mirror surface 101A and a pushing-up member 401A (B) acting in parallel with the axial direction of the polygon mirror 101 and, by measuring the tilt angle of the mirror surface 101 A and finely adjusting the tilt angle adjusting means 400 so as to decrease the variance of tilt angle of the mirror surface 101A, positional adjustment of the polygon mirror fitted over the outside cylinder 102 of the radial shaft is performed.

COPYRIGHT: (C)1998, JPO

**WEST**

Generate Collection

Print

L10: Entry 115 of 118

File: JPAB

Jul 31, 1997

PUB-NO: JP409199419A

DOCUMENT-IDENTIFIER: JP 09199419 A

TITLE: CRYSTAL GROWTH METHOD OF GALLIUM NITRIDE COMPOUND  
SEMICONDUCTOR AND MANUFACTURE OF SEMICONDUCTOR LASER

PUBN-DATE: July 31, 1997

## INVENTOR-INFORMATION:

NAME

COUNTRY

NIDOU, MASAOKI

KIMURA, AKITAKA

SUNAKAWA, HARUO

YAMAGUCHI, ATSUSHI

## ASSIGNEE-INFORMATION:

NAME

COUNTRY

NEC CORP

APPL-NO: JP08007340

APPL-DATE: January 19, 1996

INT-CL (IPC): H01 L 21/20; C30 B 29/38; H01 L 33/00; H01 S 3/18

## ABSTRACT:

PROBLEM TO BE SOLVED: To improve the flatness and the orientational property of crystallization, and to decrease the defect of lamination by a method wherein the surface of a crystal substrate is formed in such a manner that the tilt angle of the plane direction, which is equivalent to specific plane direction, is set within a prescribed value.

SOLUTION: A GaN buffer layer 2 is crystal-grown on a sapphire substrate 1 having (1, -1, 0, 1) faces as the surface, and a GaN layer 3 is crystal-grown thereon. The crystal growth speed in the direction vertical to the (1, -1, 0, 1) faces is slow, and the atomic migration on the above-mentioned plane is intensified. As a result, a hexagonal gallium nitride compound semiconductor, which is smooth on the surface in the direction in parallel with the substrate surface and having uniform C-axial orientational direction, is formed. The same effect can be obtained even when the orientation of substrate is inclined by 5 degrees or less from the (1, -1, 0, 1) face orientation.

COPYRIGHT: (C)1997,JPO

**WEST**

Generate Collection

Print

L10: Entry 114 of 118

File: JPAB

Oct 9, 1998

PUB-NO: JP410268225A

DOCUMENT-IDENTIFIER: JP 10268225 A

TITLE: ADJUSTING METHOD OF OPTICAL DEFLECTION DEVICE AND ADJUSTING  
DEVICE THEREFOR

PUBN-DATE: October 9, 1998

## INVENTOR-INFORMATION:

NAME

COUNTRY

SHIBUYA, SATOSHI

GAN, MASAO

KAMIMURA, SHOJI

## ASSIGNEE-INFORMATION:

NAME

COUNTRY

KONICA CORP

APPL-NO: JP09074842

APPL-DATE: March 27, 1997

INT-CL (IPC): G02 B 26/10; G02 B 7/198

## ABSTRACT:

PROBLEM TO BE SOLVED: To provide an adjusting method and an adjusting device so as to improve the accuracy of a tilt angle of an optical deflection device using a polygon mirror.

SOLUTION: This device is composed of a light source 301 irradiating the mirror surface 101A of a polygon mirror 101 and a light receiving element 302 receiving a reflected light beam from the mirror surface 101A, has a tilt angle adjusting means 400 composed of a tilt angle measuring instrument 300 for measuring the tilt angle of the mirror surface 101A and a pushing-up member 401A (B) acting in parallel with the axial direction of the polygon mirror 101 and, by measuring the tilt angle of the mirror surface 101 A and finely adjusting the tilt angle adjusting means 400 so as to decrease the variance of tilt angle of the mirror surface 101A, positional adjustment of the polygon mirror fitted over the outside cylinder 102 of the radial shaft is performed.

COPYRIGHT: (C)1998,JPO

**WEST**☐ **Generate Collection** **Print**

L10: Entry 117 of 118

File: EPAB

Nov 20, 1996

PUB-NO: EP000743727A1

DOCUMENT-IDENTIFIER: EP 743727 A1

TITLE: GaN system semiconductor laser device

PUBN-DATE: November 20, 1996

## INVENTOR-INFORMATION:

NAME

FUJII, HIROAKI

COUNTRY

JP

## ASSIGNEE-INFORMATION:

NAME

NIPPON ELECTRIC CO

COUNTRY

JP

APPL-NO: EP96108019

APPL-DATE: May 20, 1996


PRIORITY-DATA: JP12187895A (May 19, 1995)

INT-CL (IPC): H01 S 3/19; H01 L 21/205; H01 L 21/20; H01 L 33/00;  
C30 B 29/38

EUR-CL (EPC): H01L033/00; H01L033/00, H01S003/19

## ABSTRACT:

A GaN system compound semiconductor double heterostructure in a light emission device comprises an active layer (1) sandwiched between first and second cladding layer (2,3). Those three layers are made of GaN system compound semiconductor materials. The first, second and third GaN system compound semiconductor materials have first, second and third hexagonal crystal structures of basal planes tilted from a (0001) plane by an angle in the range of 0 degree to a few degrees, and the basal planes are substantially parallel to interfaces of the active layer (1) to the first and second cladding layer (2,3). The GaN system compound semiconductor double heterostructure have a pair of opposite resonance faces vertical to a direction in which a light is emitted, and for each of the first, second and third hexagonal crystal structures, a pair of opposite planes in the six planes vertical to the basal plane forms the opposite resonance faces.

The double hetrostructure is formed on a GaN epitaxial layer (6) by selective area growth. 

**WEST****End of Result Set**

Generate Collection

Print

L10: Entry 118 of 118

File: DWPI

Apr 21, 1998

DERWENT-ACC-NO: 1996-508010

DERWENT-WEEK: 199823

COPYRIGHT 2002 DERWENT INFORMATION LTD

TITLE: Light emission laser device based on gallium nitride cpd. semiconductor - is double heterostructure device in which gallium nitride active layer and two outer cladding layers have hexagonal crystal structures of specific orientation

INVENTOR: FUJII, H

PATENT-ASSIGNEE: NEC CORP (NIDE)

PRIORITY-DATA: 1995JP-0121878 (May 19, 1995)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 5742628 A	April 21, 1998		012	H01S003/19
EP 743727 A1	November 20, 1996	E	016	H01S003/19
JP 08316582 A	November 29, 1996		005	H01S003/18

DESIGNATED-STATES: DE GB

CITED-DOCUMENTS: 4.Jnl.Ref; EP 460710 ; EP 599224 ; EP 609799 ; JP 7122520 ; US 5247533

## APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
US 5742628A	May 20, 1996	1996US-0650439	
EP 743727A1	May 20, 1996	1996EP-0108019	
JP08316582A	May 19, 1995	1995JP-0121878	

INT-CL (IPC): C30 B 29/38; H01 L 21/20; H01 L 21/205; H01 L 33/00; H01 S 3/085; H01 S 3/18; H01 S 3/19

ABSTRACTED-PUB-NO: EP 743727A

## BASIC-ABSTRACT:

Light emission device is a GaN system cpd semiconductor double heterostruc ture having an active layer (1) sandwiched between cladding layers (2,3). The three layers are made of respectively three GaN system materials having first, second and third hexagonal crystal structures of basal planes tilted from a (0001) plane by an

angle of zero to a few deg and the basal planes are parallel to the interfaces between the active and cladding layers. Pref the device forms a resonator and has a pair of opposite resonance faces vertical to the direction of light emission; and for each of the three hexagonal crystal structures, a pair of opposite planes in the six planes vertical to the basal plane forms the opposite resonance faces.

USE - As a blue-to-UV laser emitter useful as a light source for high density optical disc devices.

ADVANTAGE - GaN system double heterostructure laser emitter acting as a resonator is provided which is free of the resonator problems of prior art GaN system devices.

ABSTRACTED-PUB-NO: US 5742628A  
EQUIVALENT-ABSTRACTS:

Light emission device is a GaN system cpd semiconductor double heterostruc ture having an active layer (1) sandwiched between cladding layers (2,3). The three layers are made of respectively three GaN system materials having first, second and third hexagonal crystal structures of basal planes tilted from a (0001) plane by an angle of zero to a few deg and the basal planes are parallel to the interfaces between the active and cladding layers. Pref the device forms a resonator and has a pair of opposite resonance faces vertical to the direction of light emission; and for each of the three hexagonal crystal structures, a pair of opposite planes in the six planes vertical to the basal plane forms the opposite resonance faces.

USE - As a blue-to-UV laser emitter useful as a light source for high density optical disc devices.

ADVANTAGE - GaN system double heterostructure laser emitter acting as a resonator is provided which is free of the resonator problems of prior art GaN system devices.

CHOSEN-DRAWING: Dwg.3/3 Dwg.3/3

DERWENT-CLASS: L03 U12 V08  
CPI-CODES: L04-A02; L04-E03B;  
EPI-CODES: U12-A01A1A; U12-A01B1A; V08-A01A; V08-A04A;



**WEST****Freeform Search****Database:**

US Patents Full-Text Database  
US Pre-Grant Publication Full-Text Database  
JPO Abstracts Database  
EPO Abstracts Database  
Derwent World Patents Index  
IBM Technical Disclosure Bulletins

**Term:**

110 and 112

**Display:**

100

**Documents in Display Format:**

-

**Starting with Number**

1

**Generate:** ☐ Hit List ☒ Hit Count ☐ Side by Side ☐ Image

Search

Clear

Help

Logout

Interrupt

Main Menu

Show S Numbers

Edit S Numbers

Preferences

Cases

**Search History****DATE:** Thursday, March 14, 2002 [Printable Copy](#) [Create Case](#)

<u>Set Name</u> side by side	<u>Query</u>	<u>Hit Count</u>	<u>Set Name</u> result set
<i>DB=USPT,PGPB,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=OR</i>			
<u>L13</u>	110 and 112	21	<u>L13</u>
<u>L12</u>	well and barrier	128976	<u>L12</u>
<u>L11</u>	5742628	5	<u>L11</u>
<u>L10</u>	18 and 19	118	<u>L10</u>
<u>L9</u>	tilt\$4	275478	<u>L9</u>
<u>L8</u>	13 and 16	662	<u>L8</u>
<u>L7</u>	13 and 16L6	2	<u>L7</u>
<u>L6</u>	14 or 15	9975	<u>L6</u>
<u>L5</u>	gan	8264	<u>L5</u>
<u>L4</u>	gallium adj nitride	3413	<u>L4</u>
<u>L3</u>	11 same 12	590402	<u>L3</u>
<u>L2</u>	orientation or direction	3583448	<u>L2</u>
<u>L1</u>	ang\$4	1986093	<u>L1</u>

END OF SEARCH HISTORY